

Putting the Pow! into Powerpoint

Michael Patkin FRACS

Department of Surgery
The Queen Elizabeth Hospital
16 April 2007

ver 070419a

1 of 68

You are now watching a PDF file (“Portable Document Format”) which has been converted from a Powerpoint presentation, on the topic of how to give better Powerpoint presentations by avoiding some of the common mistakes.

To view this PDF file better, click on “View” on the Menu bar (second line from the top), then click “Full Screen” (fifth item down). To see the next slide you can just click the left mouse button, or the Page Dn key, or use the scroll wheel on your mouse, or the vertical scroll bar on the right, or the down arrow key ↓

To get back from the Full Screen view at any time, click the Esc key at the top left of your keyboard.

Putting the Pow! into Powerpoint

Michael Patkin FRACS
Department of Surgery at Department of Surgery at
The Queen Elizabeth Hospital

16 April 2007



ver 070415a

2 of 68

This lecture is aimed at surgeons who want to prepare a free-standing version of a Powerpoint talk which can then be downloaded from a website.

Normally at lectures you only see something like the blue slide above. Down here, in the white area, is where explanatory notes can be seen if you watch the presentation when a speaker is not present, whether it is in Powerpoint or in PDF.

I've taken the liberty of adding a couple of snaps, as you can't see me in the flesh just now and we are trying to imitate a real lecture as far as possible.

Why not a movie and far more realism? Much smaller file, much less bandwidth to download, much less demand on your patience as a surgeon, so you can flick forwards and backwards as fast or as slow as you like. You don't have to listen to audio, which can be downright boring.

Introducing Michael Patkin

3 of 68

As there isn't a chairperson here online to introduce me at this Internet presentation, I've taken the liberty of adding a brief biographical note

I'm a retired country general surgeon, after working at Whyalla, South Australia for 30 years.

For the last 40+ years I've had a strong interest in ergonomics and applying it to operative surgery.

I've also had an interest in cognitive ergonomics and information design and sharing, which is what this Powerpoint presentation is about.

Making slides legible

instead of

illegible

illegible !

4 of 68

This talk is about being able to read the text on slides at meetings, or see the details, even if you are at the back of the room and there is wash-out lighting from side windows.

You might be behind someone tall and unable to see the bottom lines of slides.

You can protest to the organiser or next time just get there earlier. There are other aspects to good venue design, a topic for another occasion.

Summary

1. Why have Audio Visual aids
 2. Different kinds of slide:
text / graphs / drawings / cartoons /
photos / movies
 3. How to improve them
 4. How to share Powerpoint
presentations
-

5 of 68

Text and talk are linear, a continuous one-dimensional stream of elements. Worse, there is no replay button for a live talk if you lose the thread.

While your attention has limits, your inner and outer worlds have many dimensions, like the super-string theory of matter.

In a lecture you try to share this knowledge of your world, using word pictures, and perhaps A-V (Audio-Visual) aids. A presentation like this is meant for an audience of one, or perhaps two (or three) at a time.

Do you need A-V aids (1 of 3)?

- **no**
 - Sermon on the Mount
 - Parliament (except microphones)
 - **yes**
 - 10 Commandments
 - Nuremburg rallies, most talks
 - can go wrong
 - costs
-

6 of 68

Throughout history, great speakers have not used visual aids.

Today Powerpoint comes in for well-deserved criticism.

However think of TV as radio with pictures, think of complex issues debated in Parliament which would become clearer with graphs, diagrams and pictures.

These days when Treasurer Peter Costello talks about our national economy, he may use Powerpoint graphs to show how incomes or government expenditure have changed.

Do you need A-V aids (2 of 3)?

- **no**
 - Sermon on the Mount
 - Parliament (except microphones)
- **yes**
 - 10 Commandments
 - Nuremburg rallies, most talks
- can go wrong
- costs



7 of 68

According to the biblical account, Moses came down from Mount Sinai bearing two stone tablets with the Ten Commandments, the first recorded use of AV aids.

On the other hand Jesus needed no such aids when he presented the powerful message of the Sermon on the Mount.

In modern times a demonic Hitler used lighting designed by Speer the architect to emphasize his evil message at the Nuremberg rallies, as well as microphones in the crowd to swell the waves of applause through loudspeakers under his platform.

A-V aids are not without problems, with embarrassing delays and total failures at times.

Do you need A-V aids (3 of 3)?

- **no**
 - Sermon on the Mount
 - Parliament (except microphones)
 - **yes**
 - 10 Commandments
 - Nuremburg rallies, most talks
 - can go wrong
 - costs
-

8 of 68

Today Powerpoint comes in for well-deserved criticism.

However think of TV as radio with pictures, and think of Powerpoint with Notes Pages showing as easier and cheaper than a full-blown instructional movie.

Do you need A-V AIDS ? **YES , often**

- tyranny of space, time (like books etc)
- metaphors, picture = 1000 words
- prompt for speaker
ill-prepared, nervous,
complex unfamiliar topic

9 of 68

A-V aids, like other media, allow us independence of the tyranny of space and time. We can see or read about events long ago and far away.

You can show photos of skin cancers, or events like a breech delivery, where a video can provide a powerful proxy for the experience of being there.

Powerpoint is often criticised as being a prop for the under-prepared speaker.

So? You might have been reading it off paper instead – just remember not to have your back to the audience.

Types of A-V

- none microphone +
- black / white-board
- butchers' paper, flip charts
- OH projector
- 35 mm slides
- **Powerpoint "slides" ←**
- video
- models, demonstrations, gestures

10 of 68

In everyday life there are traffic lights, indicators, bleeps, hooters, sirens - all examples of A-V aids.

35 mm slides have vanished into limbo, but overhead transparencies (called "foils" in the US) still have a use where setting up a data projector is a problem – think of third-world health teachers who happen to have electricity, or butcher's paper or flip charts if they don't.

Remember the value of gesture and representation with the hands, whatever other medium you use.

Why have better slides ?

11 of 68

Powerpoint slides remain the mainstay of surgical and business presentations, as well as in education, military training, and religion and have an increasing role on the Internet and other networks.

Why have better slides ?

- convey information more clearly, fully
-
-
-
-

12 of 68

Here are some reasons.

Note that I've inserted the symbol for each of the bullet points to come, to help the mental preparation of the audience.

Why have better slides ?

- convey information more clearly
- clarification for oneself
-
-
-

13 of 68

Note also the way that a sequence of points is presented.

There are in this case five slides, and each heading is shrunk as the next one appears.

You can make the last slide in a series first, then gradually remove one line at a time from the bottom. In the Powerpoint program you can enlarge the current bottom line with the pair of buttons A[▲] A[▼] (to the right in the menu bar at the top of the Powerpoint page view.)

Why have better slides ?

- convey information more clearly
- clarification for oneself
- personal reputation, satisfaction
-
-

14 of 68

Ego is a big driver for preparing better talks. If you give a poor presentation you will be unhappy with yourself.

During preparation you will go through the presentation several times to make it better to look at, with the advantage that you become more familiar with it each time.

Why have better slides ?

- convey information more clearly
- clarification for oneself
- personal reputation, satisfaction
- reputation of the organisation
-

15 of 68

If they stop to think about it, the heads of departments will realise how their reputation will grow with the presentation skills of their juniors.

All speakers should have to present their papers to an in-house audience about a month before a big occasion. The fiercer the criticism of their trial run, the better that the final result should be.

Why have better slides ?

- convey information more clearly
- clarification for oneself
- personal reputation, satisfaction
- reputation of the organisation
- cost (100 people \times \$100/hr = \$10k
.... and the rest)

16 of 68

Attracting people to attend as an audience has all the power of a lever in magnifying the results of a communication.

Giving a bad presentation is poor economics and also damages morale and enthusiasm.

Legible text

6/6 vision

letters 1 cm high at 6 metres

1 : 600

17 of 68

What is legible text?

Normal vision is the ability to read letters one centimetre high at a distance of 6 metres, a ratio of one to six hundred.

Legible text

6/6 (normal) vision

- ability to read letters
1 cm high at 6 metres (600 cm)
(ratio of 1 to 600)

In practice

- safety margin of three,
ratio of 1 to 200

18 of 68

A safety margin of 3 is commonly accepted in engineering practice. *

* See Wikipedia at:

http://en.wikipedia.org/wiki/Factor_of_safety

Letter height

- text 1.5 mm at 30 cm
- name-tag 1 cm at 2 m
- highway sign 1 m at 200 m

- lecture 40 cm at 8 m
 [too big at front, too small at back]

19 of 68

On a name-tag, using letter-sized 12 point text means you have to be within 30 cm of someone in the dim light of a cocktail party, perhaps breathing garlic at them. You will be close enough to look down the décolletage of a lady.

The common distance for interpersonal greeting, with a big smile of recognition, is 2m. If you can read their name tag when your memory for their name has failed, your interaction is all the better and the occasion a happier one.

Text properties

- Size ✓
- Colour
- Case, font
- Spacing

20 of 68

So much for the size of text. Over the next few slides we'll look at other properties of text.

Text colour

58

There is detailed data in the literature of Human-Computer Interaction on factors affecting legibility of text.

One of the best combinations is black text on yellow. One of the worst is pale yellow on white, as was once commonly seen on Dymotape labels.

Red text on green will not be legible to the five per cent of the population who have this form of colour blindness.

These colors are at opposite ends of the visible spectrum. As far as the eye is concerned, they are one diopter apart

22 of 68

With one diopter difference for focus on edges of red and blue, the iris is constantly “hunting” between the two to get the sharpest image.

The wavelengths of red and blue are 800 and 400 nm, giving the one diopter difference.

Text spacing

onceuponatime

once upon a time

23 of 68

This slide speaks for itself.

Up till the Middle Ages and in some languages other than English there are not breaks between words.

In most modern languages reading is much harder without these breaks.

Character spacing

Burn burn bum

24 of 68

Just because a handsome looking alphabet comes ready-loaded in a software package does not mean it is perfect.

Spacing between two characters varies with different fonts. It is called “kerning”, and can be adjusted in more elaborate software such as MS Word.

In this case the difficulty in picking the intended version of a word can mean either a mistake or else irritating indecision.

Punctuation marks

- Too small for easy reading in many computer fonts

eg compare . with .
compare ... with ...
compare : with :
compare ! with !

25 of 68

The change to a more legible character is easy to make, either by enlarging it with the pair of buttons A[▲] A[▼] in the menu bar or by selecting it (using shift and arrow key) and making it **bold** with Ctrl and B keys. There may be something in favour of making every full stop bolder.

Fonts

This font is the popular Times New Roman

This is printed in one of the Ariel fonts

I happen to like "Comic Sans", less severe

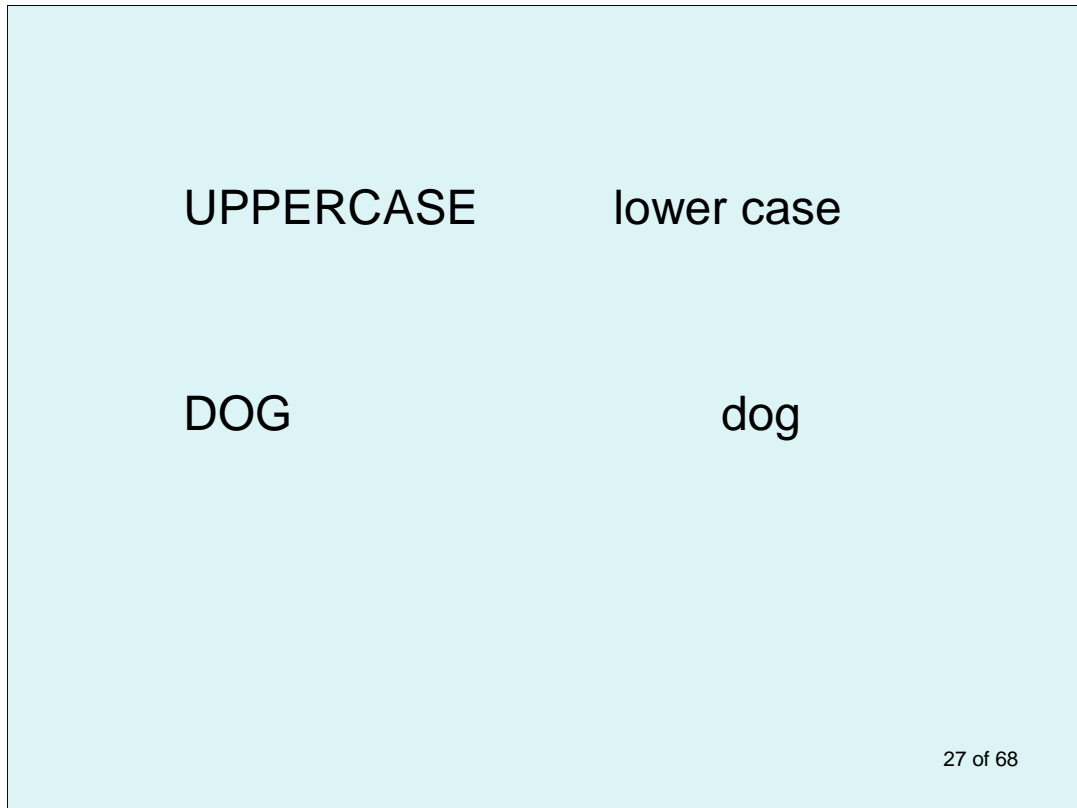
Here is a font called "Impact"

Here is another called "Monotype Corsiva"

26 of 68

Choice of font is highly individual. Some are frankly more difficult to read. There are many published studies on which font is the most legible in different circumstances.

One of the problems with Times Roman is how thin some of the vertical elements are, making it less legible under poor viewing circumstances.



According to one study, lower case is about 20 per cent more legible.
This may be an underestimate.

DOG

dog

IMAGINE A
DENSE BLOCK OF
STUFF EITHER
IN UPPER OR
LOWER CASE
WHICH YOU ARE
TRYING TO READ
QUICKLY

Imagine a dense
block of stuff
either in upper or
lower case which
you are trying to
read quickly

28 of 68

... especially when applied to slabe of text rather than single words.

Text background

29 of 68

It is common for presenters to use light text on a dark background. However a pale background reflects more light in a small dark room, when the audience might otherwise be more likely to nod off to sleep



Here is some lettering put against a variegated background. It is irritating to try and read, and doesn't help the message

Here is some lettering put against a variegated background. It is irritating to try and read, and doesn't help the message

Some authors of Powerpoint – and magazine publishers – make text difficult to read by camouflaging it in this way.

Testing for legibility

-
-
-
-
-
-

31 of 68

Here comes a series of points to discuss.

Testing for legibility

- naked eyeball Mark 1 test, commonsense
-
-
-
-
-

32 of 68

This refers to one's first impression.

Testing for legibility

- naked eyeball Mark 1 test, commonsense
- 35 mm slide -- look at arm's length
-
-
-
-

33 of 68

In the old days of 35 mm slides, a good test for the likely legibility of the slide was to hold it out at arm's length.

Testing for legibility

- naked eyeball Mark 1 test, commonsense
- 35 mm slide-- look at arm's length
- look with half-shut eyes or from further away
-
-
-

34 of 68

For on-screen writing, this is an effective and immediate test.

Testing for legibility

- naked eyeball Mark 1 test, commonsense
- 35 mm slide-- look at arm's length
- look with half shut eyes or from further away
- ask other people
-
-

35 of 68

As in an old proverb, your enemies are your best friends, because they show up your weaknesses.

You need strong effective criticism to sharpen up a presentation.

Testing for legibility

- naked eyeball Mark 1 test, commonsense
- 35 mm slide-- look at arm's length
- look with half shut eyes or from further away
- try other people
- review, rehearse with an audience - any audience
-

36 of 68

Each time you go through a presentation you are likely to pick up a detail or two that you can improve on.

I generally try out my presentations on the cleaning lady if she is available. If I can make the meaning of the slides clear to her, I may succeed with a surgical audience.

Testing for legibility

- naked eyeball Mark 1 test, commonsense
- 35 mm slide-- look at arm's length
- look with half shut eyes or from further away
- try other people
- review, rehearse with an audience - any audience
- adjust slides to audience and venue

37 of 68

Think hard on the assumptions you are making about your audience, and whether there is a match between it and the presentation.

There is wide latitude in choosing the spoken words to fit the same visual presentation.

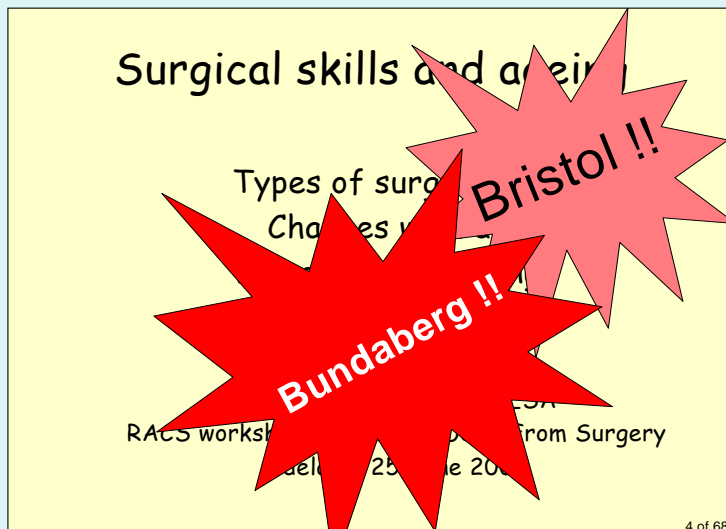
Words and phrases in slides

- your audience can read
- cut ~~the~~ prepositions ~~and~~ conjunctions ~~and any~~ unnecessary modifiers
 - = cut prepositions, conjunctions, modifiers
- beware acronyms & other mysteries
- avoid clichés like the plague

38 of 68

... the obvious ...

Adding emphasis



39 of 68

In a series of slides, it adds big impact to use a visual trick like this for the last one – or in this case, two.

Consistency

Reduces the cognitive load

- Same format, layout, colours
- Fonts type and size, no more than three

Other types of slide

- text ✓
 - data
 - diagrams
 - drawings
 - cartoons
 - photographs
 - movies
-

41 of 68

Let's look at these one by one. We've already done text.

Bad graphs

- too busy, too much info
- grid heavy
- data lines faint, complicated
- captions missing, illegible
- scales bad
- obscure

42 of 68

An excellent reference for this subject is Edward Tufte's "*The Visual Display of Quantitative Information*". It is worth getting for your departmental library. See:

http://www.edwardtufte.com/tufte/books_vdqi

When a graph is copied from a book or journal, the captions usually become too small to read. You can replace them with larger text by placing a Text Box over the original.

John Snow, cholera, and the Broad Street pump

43 of 68

Dr John Snow was a general practitioner in London, famous for giving Queen Victoria an anaesthetic for the birth of one of her children. Even more notably, he discovered the infectious cause of an epidemic of cholera in London.



He plotted each case of cholera on a map of the streets of Soho and found the densest concentration around the pump in Broad Street.

The pump was next to a cracked cess-pit where the mother of a baby with cholera had washed its napkins, thus spreading the infection. Another version had the pump drawing water from the Thames which was infected.



Here is a picture of Snow's original epidemic.

He decided to remove the handle of the Broad Street pump to stop the epidemic, and for years this handle was above the bar of a pub in Soho.

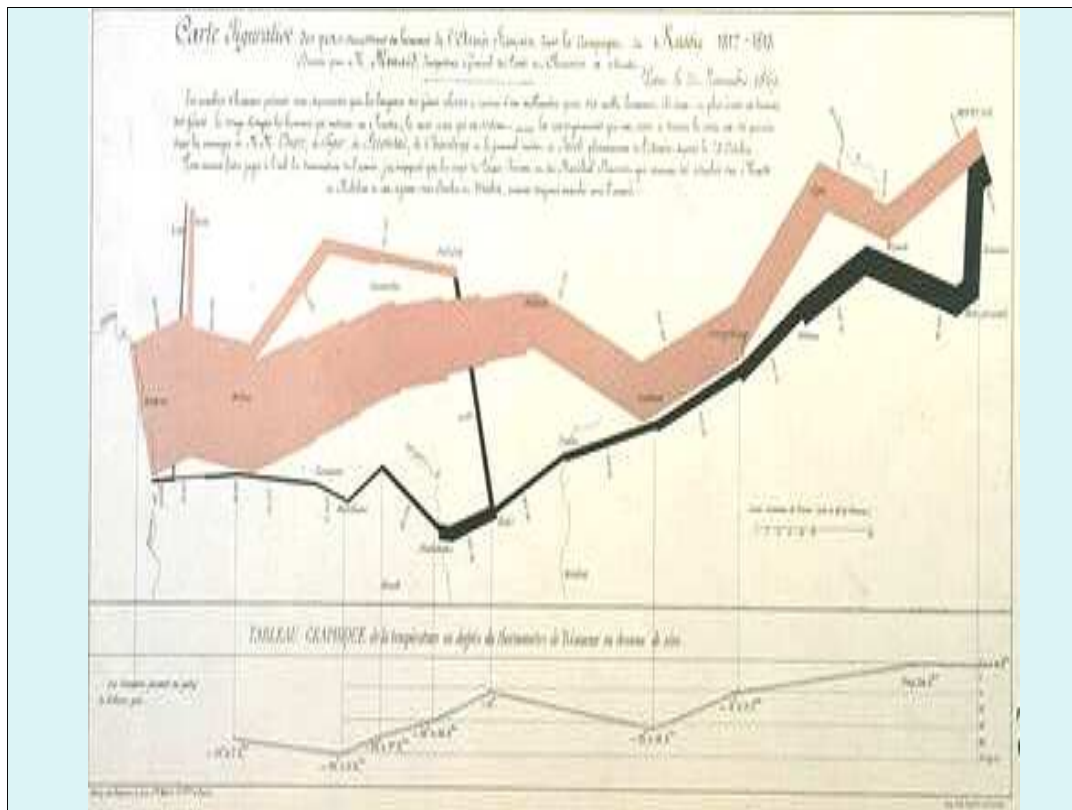
Sadly for the story, the epidemic had already peaked. You can find the story at the website of the Centre for Disease Control, Atlanta:

www.cdc.gov

Napoleon's retreat from Russia

46 of 68

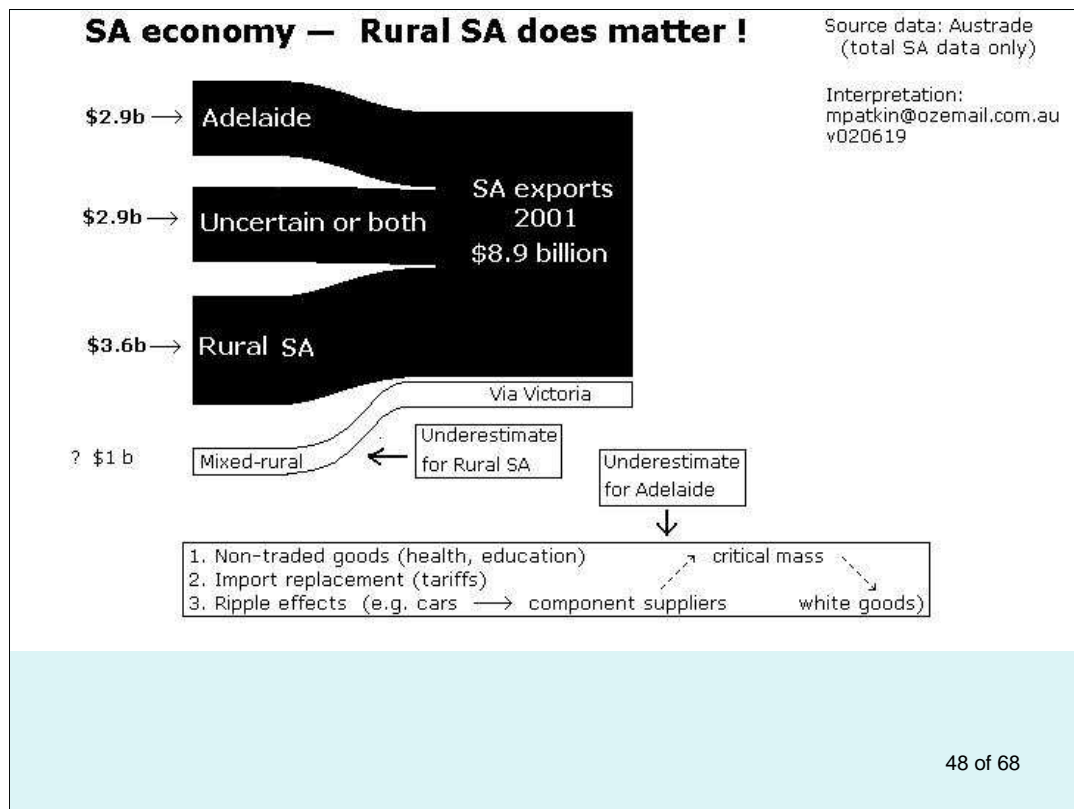
The dismal story of Napoleon's disastrous expedition to Russia in 1812 is told in magnificent detail in Tolstoy's "War and Peace".



Starting at the left, the width of the brown line is proportional to the size of Napoleon's army. As he marches to Moscow it gets smaller. As he returns to France, it shrinks further to about 4000 instead of the half million he left with. It shows what an egomaniac monster he was.

On the original diagram more information can be made out, including dates. If only ICU data could be plotted in some similar way!

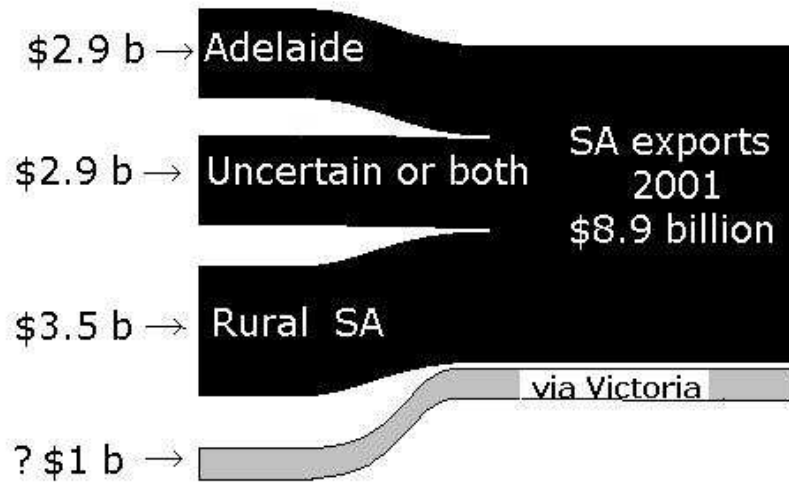
The above diagram is copied from Edward Tufte's book "Envisioning Information".



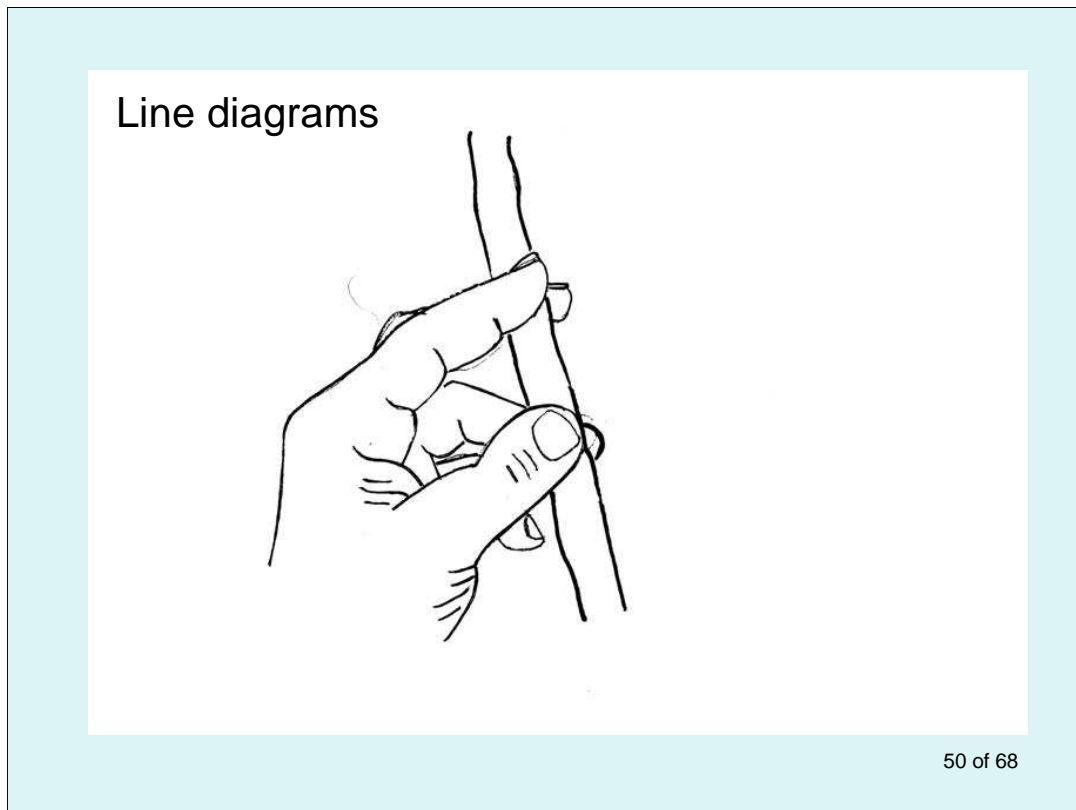
Here is a strong statement in a discussion about the importance of the areas of South Australia outside the capital of Adelaide.

This was in an argument I presented when living at Whyalla, which was always overshadowed by the state capital Adelaide.

SA economy — Rural SA does matter !



For a spoken presentation, here is a stripped-down version of the same graphic to make it quicker to take in, while the rest of the earlier information would be presented by the speaker..

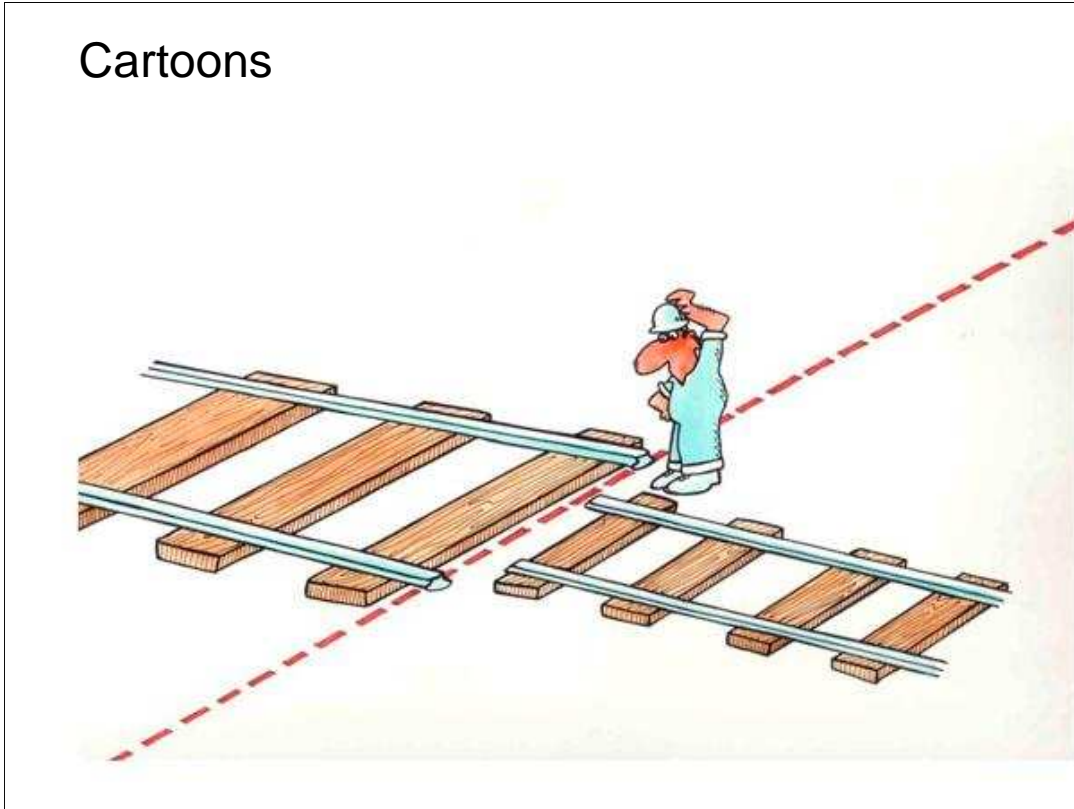


Line diagrams can be much clearer than photos.

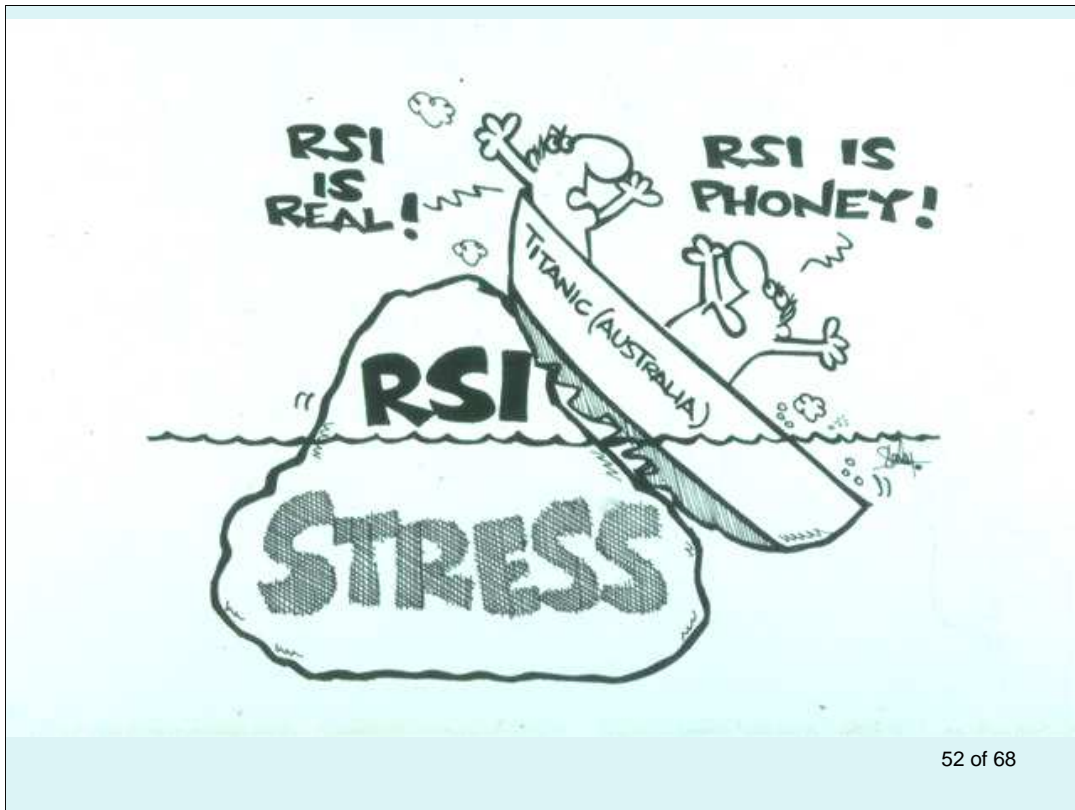
Technique: Take a piece of perspex, or safety glass with non-sharp edges and corners and lay it over the object in a good light. In this case it is a left hand double grip. Trace the object with a non-permanent felt-tip pen. Trace the tracing, then scan. You could flip for right hand, combine hands, and manipulate in a graphics program

An alternative is “rendering” photos in a graphics editing program.

Cartoons

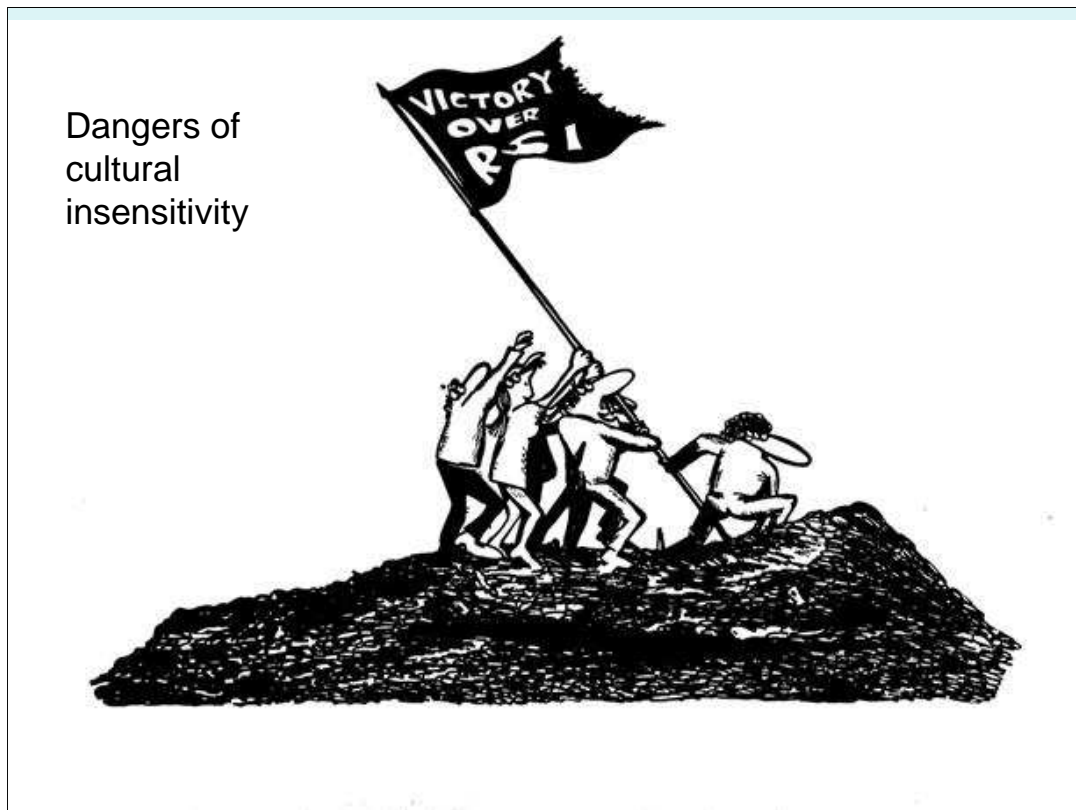


If you are blessed with access to a talented cartoonist, a picture is worth a lot. This cartoon was to illustrate the problems of incompatibilities between different parts of a system, in this case optical fibre cables and connections from different manufacturers not following the same standard.



52 of 68

Another cartoon, this time for a discussion of the phenomenon of Repetitive Strain Injury in Australia in the 1980s.



This would have been an offensive cartoon to include in a talk I gave in Japan in the 1990s because it refers to an iconic photo about the Japanese defeat on the island of Iwo Jima in World War Two, with horrendous loss of Japanese life. Should this be accessed on the Internet, I hope Japanese friends will forgive me in the interests of improving academic communication.

Think hard before including a joke about sex or other sensitive topics. It may go down like a lead balloon.

Slide too dark



54 of 68

So it will need to be lightened.

Slide made lighter & better



... but still needs explaining

55 of 68

It is actually a distended abdomen, with the patient's thighs to the left. She has been given a pneumoperitoneum increased daily for 3 weeks, in preparation for repair of an incisional hernia with a dozen previous failures.

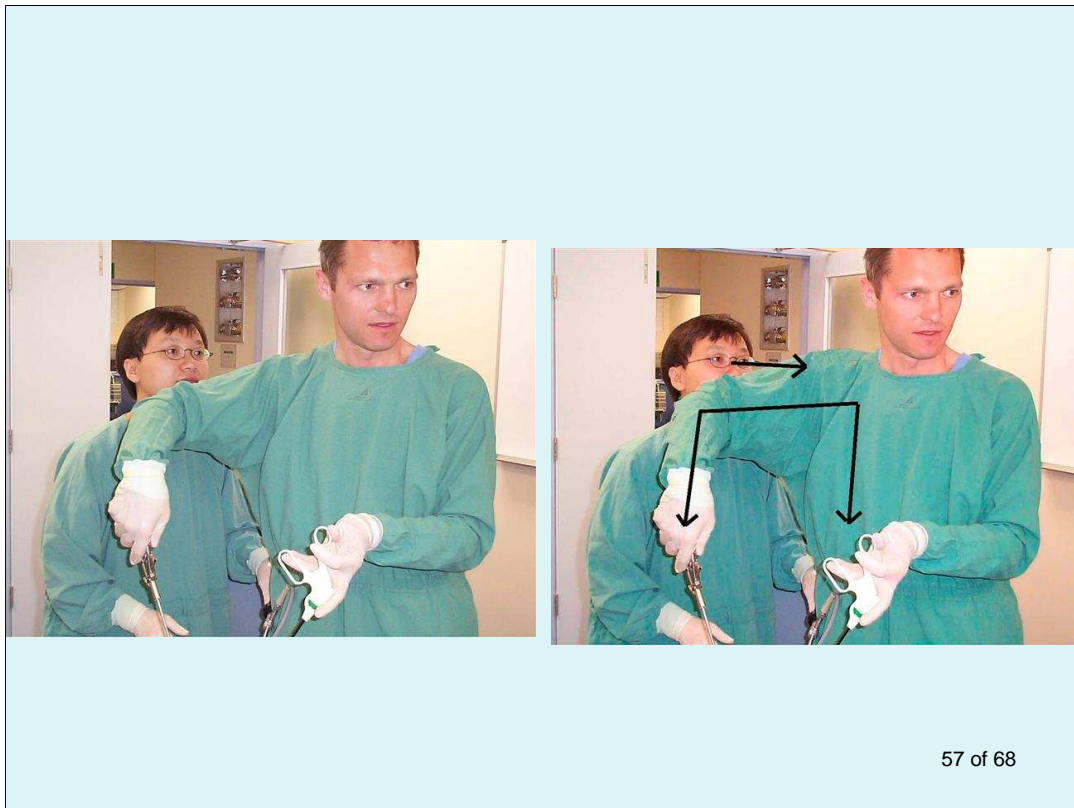
In this case the repair was successful.



56 of 68

Here are two young basic surgical trainees working at a laparoscopic simulator.

There is a failure to plan for the needs of the shorter assistant whose vision is partly blocked by the operator's right arm. (He should be standing on a low platform.)



Using the graphics symbols in Powerpoint I have put in an upside-down U with arrowheads to emphasize the awkward chicken-wing abduction of the right shoulder, which should have been avoided with better organisation and siting of the laparoscopic ports.

However it has also been easy to use software called Photoshop to shift the operator's right upper arm upwards to exaggerate the problem, which is neither honest nor a good idea.

Movies - can be *very* powerful

- Easy using Apple Mac and Quicktime files (but will the venue be Mac?)
- PC - have to convert to .avi format, embed, and include movie in same folder
- Try out your talk at the venue, prepare for failure (won't run, too small, too dark)

58 of 68

Movies can illustrate a powerpoint presentation very powerfully, as long as they are appropriate and short.

There is a series of instructions on the Menu bar starting with Insert. The movie needs to be in a format called .avi (dot a v i), so it might need to have been changed from another format.

Apple Mac users have an easier time, but may run into trouble at some venues.

Recipes for disaster

- multiple projectors
- speaker failures - not preparing, excess nerves, not audible, rushing
- gimmicks

Other no-nos

- Microsoft templates & transitions
- institutional logo after first slide
- sound effects

59 of 68

There are a few matters which experience shows leads to disasters at times, or at least embarrassing delays and shuffling.

The root cause is the temptation to use technology just because it is there, when it probably would not have added a scrap of benefit to the occasion anyway. In fact the clever technology would have distracted the audience from the content of the talk.

Major problems

- Check the venue
 - screen too low, ambient light
- Prepare for glitches
 - System won't work
 - Audience not interested, distractions

60 of 68

If the screen is too low and has 3 legs, you can raise it on 3 chairs, one under each leg, but this (like so many things in hospitals) depends on the local interpersonal politics.

Ambient light may stream in from the afternoon sun, washing out the slides. You can partly prepare for this with large contrasty text and suitable graphics.

If the system won't work, you may end up giving the talk from your own copy of the handout. If you are lucky, each attendee can be given a copy of it as well before the start of the talk rather than at the end.

If you have a drunken distracted audience, all you can do is struggle through for a while, draw your talk to a close and smile as hard as you can. There's always next time.

Minor tips

- Details of legibility - font, size
- Balance
- Fine tune eg replace : with ; and ! with !
- Progressive revelation of headings - instead of Microsoft "transitions" use simple sequence of slides, shrinking previous text as you go.

61 of 68

Experience in preparing Powerpoint talks, and exploring the various editing options, will give you steady improvement.

There are lots of other tools to explore !

If you have hand-outs of copies of your presentation, it is better to give them out afterwards (Unless the projector fails!) Otherwise the audience will flip backwards and forwards through them to see how you are going.

They rarely add notes, and those who are keen will make them on separate paper anyway. Just tell them compies will be available later.

Laser pointers – don't wave them about, don't over-use, and steady them against a support if you have a distracting tremor.

Cures for bad slides

- for the department
- for the individual

62 of 68

It is up to the Department head to ensure that members present talks of good quality. The way to do this is to have good guidelines (such as this talk), trial presentations at least a month earlier, and utterly ruthless criticism.

Some individuals may feel they lack the technical savvy that is needed. Not so. You can make the slides simple but avoid the pitfalls that impair legibility.

What to do with your masterpiece

- Recycle it, improving each time
- Share it widely
 - Hand-outs
 - Make it available as a .pdf file
 - Get it on a web page

63 of 68

Phew!

Having expended all that effort, it is worth getting as much use as possible from your masterpiece.

It may be possible to get it onto a Departmental website, or (gulp!) the website of the Royal Australasian College of Surgeons (one of mine is there, on “Winding Down from Surgery”). Or you may have your own personal website to refer interested people to.

Stand-alone presentations

- Have a separate "Notes Page "
- Consider special software ("Articulate Presenter " which costs \$1000)
- Convert the presentation to a .pdf file which can be posted e.g. to the RACS website and viewed with the Page Dn / Page Up keys.

64 of 68

If a speaker is not present, the usual spoken information will be missing. Going through the Powerpoint file will be a waste of your time.

Use View > "Notes Page" to insert the remarks you would have spoken, and convert it to a PDF file.

It is extra work for the author, but the result should be worth it. (Set font size to 24 pt on View > Master > Notes Page to make it legible).

The Notes Page can be included in a pdf version of your ppt file, using the free software "PDF Creator" from <http://sourceforge.net/projects/pdfcreator/>

Press Print > PDF Creator, and select Print What: > Notes Pages but do not tick the box next to Print to File, or the Notes Pages will fail to print.

Others can still view the Notes Page in the original ppt file (see next slide).

[if not viewing this as a pdf file ...]

To view the Notes for this Powerpoint presentation:

At top left hand of keyboard click "Esc"

You might see the "Notes Page" – if not

.... near top of screen click "View"
then click "Notes Page"

65 of 68

This, or text below, is the information that could be put at the start of a standalone Powerpoint file:

"To advance to next slide, press "Page Down"

To go back, press "Page Up"

To resume "Full Screen", click icon below left, third from the edge, or icon below right (in MS Vista)"

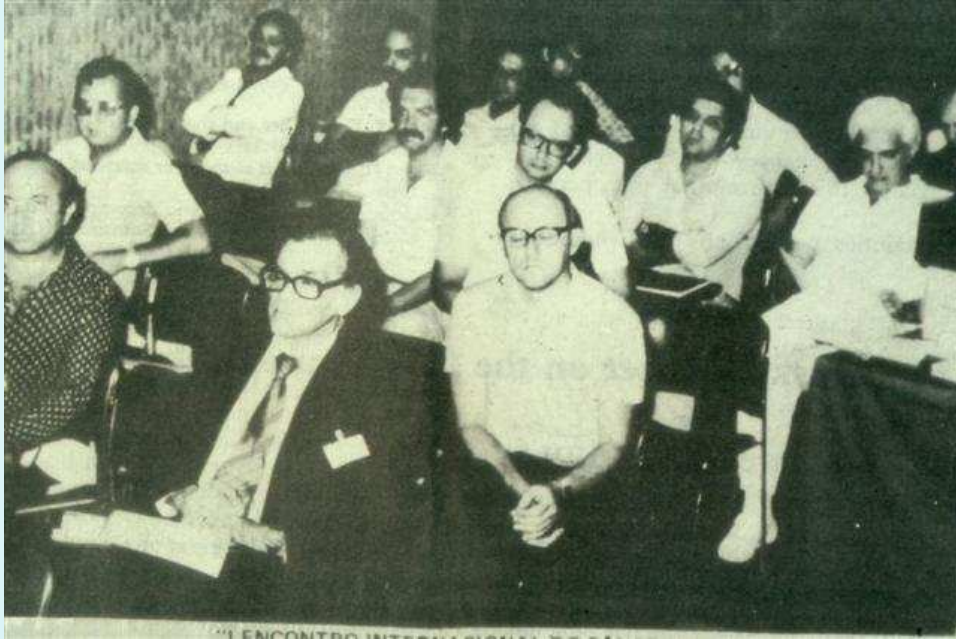
Of course it doesn't apply in the present case.

Resources

- colleagues, friends
- A-V tech, A-V dept
- university library
- internet (Google → powerpoint design, specific sites)

66 of 68

There is a huge number of powerpoint presentations on the Internet. Some of the best have guidelines for conferences. I hope to name a few of the best on my website in the near future.



67 of 68

This photograph was published in the BMJ many years ago. It shows the audience at an international conference on psychiatry caught on infra-red film.

Comments welcome, to:
mpatkin @ bigpond.net.au

(remove the spaces in the above address when you write)

You might like to visit
www.mpatkin.org

68 of 68

Please contribute your ideas and especially your criticisms.

The spaces in the email address are to stop it being harvested by an automatic program for spamming.